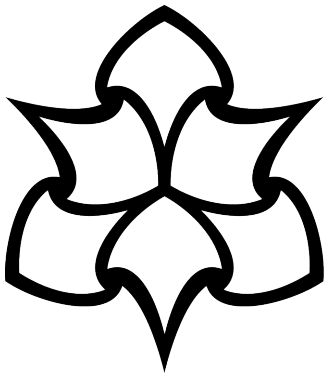


# Chapter 9 – Using SSM in Project Management: aligning objectives and outcomes in organizational change projects

**Lee Sarnoe**[1]

**Alberto Paucar-Caceres**[1]

**Rosane Pagano**[1]

**María Castellini**[2]

[1] Manchester Metropolitan University Business School
All Saints Campus, Oxford Road, Manchester, M15 6BH, UK

[2] Facultad de Ingeniería y Tecnología Informática, Universidad de Belgrano
Villanueva 1324, Buenos Aires, Argentina
Facultad de Ingeniería, Universidad de Buenos Aires
Av. Gral. Las Heras 2214, Buenos Aires, Argentina

## Abstract

This paper aims to contribute to the use of SSM in Project Management, by exploring what happens in a real-world organisational change projects when stakeholders seem to agree in a set of initial-objectives and final-outcomes of the project. SSM Analyses are then use to explore the misalignments between initial-objectives and final-outcomes along the project life cycle. Initial results suggest that SSM helps to "shadow" these misalignments when structuring an unclear complex situation such as organisational change projects and that the application of SSM facilitates negotiations, generates debate, understanding and learning. This leads to meaningful collaboration among stakeholders and enables key changes to be introduced reflecting on the potential misalignments. Results also support SSM analysis of changes in role, norms or value adversely influencing project outcome.

**Keywords**: Soft System Methodology; Project Management; Organisational Change; Problem Structuring Methods; Soft OR

## 1. Introduction

Project management (PM) has evolved from the traditional project management (PM) theory to managing change projects across different organisational departments. (Winter, 2006; Silvius et al., 2012; Morris, 2002; Koskela et al., 2002). Silvius et al., (2012) states that Project Management now include complex organisational change and not just the traditional construction and building projects. Projects are the instrument of change and adequate change requires the right adjustment to existing processes, 'Improvement requires change, Kenett & Baker,(2010:46). Project Management now includes tools and techniques to manage complex organisational change projects.

From the perspective of management science, contribution from the operational research (OR) field towards project management has been from the 'hard' end of the operational research (OR) 'soft/hard' spectrum and it seems that there has been few explicit examples of the use of

soft or problem structuring method (PSM) in PM. That have said, a recent paper reports the use of SSM in new application areas such as sustainable development, knowledge management and project management, Hanafizadeh & Mehrabioun (2017).

This paper illustrate the use of soft system methodology (SSM), a particularly successful and widely regarded PSM in five real life change projects of the *Change Management and Process Improvement* (CMPI) unit at a University in the north of England (*'UniNorthEngland'*) by highlighting how the use of SSM approach in organisational change projects could help to reduce such misalignments. The paper aims to highlight the use of problem structuring method in identifying perceived problems and in particular, illustrate the role of soft system methodology (SSM) at the front-end of CMPI projects as tools that could assist in defining the project objective or what need to be achieve.

We aim to understand why there is a deviation between objective and outcome and we draw on SSM's cultural stream mode of application (Checkland 2000, 2006) to make sense of this. SSM cultural stream suggests three types of tools of analysis known as 'Analyses one' (intervention itself); 'Analyses two' (Social) and 'Analyses three' (political). We argue that these tools may help to understand the role of people involved, its attributes or behaviours and organisational cultural elements and help us to understand and hopefully minimise the misalignments between objectives and results. Emphasis is place on the role of soft system methodology (SSM) at the front-end of the projects as tools that could assist reduce misalignments between objective and outcome.

The paper is organised as follows. After this introduction, in section 2, we outline SSM's main features. In section 3 we discuss the application of SSM to Project Management. We present the context and the setting for the application. In section 4 the main findings and conclusions are presented.

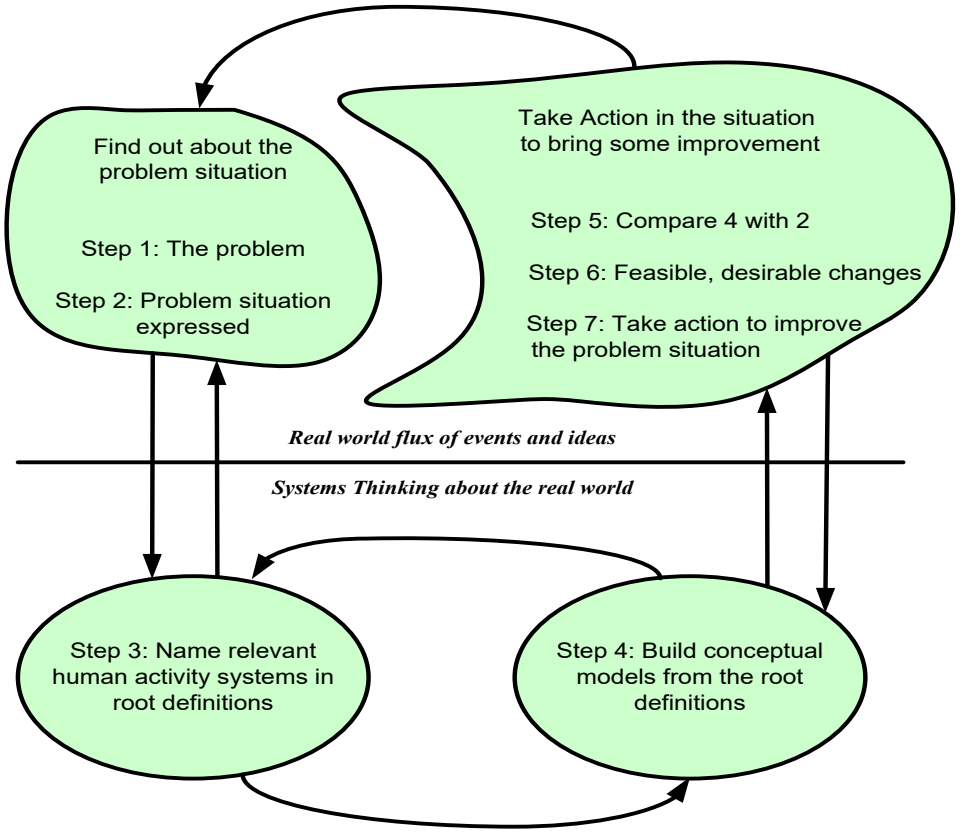
## 2. Soft Systems Methodology

Peter Checkland's Soft Systems Methodology (SSM) is one of the most developed Systems Methodologies in terms of its theoretical premises and philosophical underpinnings. It is also one of the most widely PSM used in the UK and in other parts of the world (Mingers, and Taylor, (1992); Ledington, *et al*, (1997); Macadam, R. D. and Packham, R. G. (1989); Macadam, R. D. et al., (1990); Macadam, R. D. et al., (1995), Rodriguez-Ulloa (1994a, 2003), Wilson (1984, 2001) amongst others. During the 1970s, Checkland and his colleagues at Lancaster University questioned the use of hard systems thinking to real-world situations and started to test a new methodology that shifted the systemicity from the real world to the process of enquiry itself.

In essence, SSM articulates a learning process which takes the form of an enquiry process in a situation that people are concerned. This process leads to action in a never ending learning cycle: once the action is taken, a new situation with new characteristics arises and the learning process starts again. The methodology is summarised in Fig 1. This is the SSM best known methodology and although Checkland has expressed a most flexible way of applying his ideas in his latest book (Checkland and Scholes, 1990), the 7 stage methodology is still the most convincing and helpful account of the SSM enquiry.

The basic structure of SSM rest on the idea that in order to tackle real-world situations, we need to make sure that the 'real-world' is separated from the 'systems thinking world'. This distinction is crucial for SSM because that assure that we won't see systems 'out there'; that is in the real world. SSM urges us to consider 'systems' as abstract concepts (preferably, the word 'holons' should be used) which, when use against the real-world, can eventually help to bring some improvements to the situation concerned.

SSM follows an interpretive perspective (Checkland (1981, 1986), Checkland and Scholes (1990), Wilson (1984, 2001), Jackson (1992)). This can be summarised as follows: According to Checkland, life world is an ever changing flux of events and ideas and 'managing' means reacting to that flux. We perceive and evaluate, take action(s) which itself becomes part of this flux which lead to next perceptions and evaluations and to more actions and so on. It follows that SSM assumes that different actors of the situation will evaluate and perceive this flux differently creating issues that the manager must cope. Here, SSM offers to managers the systems ideas as a helpful weapon to tackle problematic situations arising from the issues. The world outside seems highly interconnected forming wholes; therefore it seems that the concept 'system' can help us to cope with the intertwined reality we perceive. Figure 9.1 shows the basic structure of Soft Systems Methodology.




**.Figure 9.1. The Basic Structure of Soft Systems Methodology adapted from (Checkland 1981, p.163)**

SSM is a systems-based approach to problem structuring and taking action in ill-structured, complex circumstances developed through real-world problem situations (Checkland and Poulter, 2006). Checkland and his associates realised that in most circumstances the objective or aim were part of the problem (Checkland in Rosenhead and Mingers, 2001). Without a clear agreed objectives, or if the objectives are poorly defined, then the result may lead to misalignment between aim and output; thus, "the primary contribution of SSM is in the analysis of complex situations where there are divergent views about the definition of the problem" (Mingers et al., 2010 p. 1151).

The thinking behind the development of the approach was to seek ways of dealing with complex, poorly managed, and fuzzy problems and especially those problems that had high potentials of creating social drama (Furnell 2008: 294). SSM has widely been used in the structural thinking and the intervention into complex organizational problems by addressing management systems that are complex in nature, and it seeks to assess as many diverse possibilities as possible. The approach has been used in many fields that include human resource management, planning of information systems, in the planning of health and medical systems and the development of expert systems among many more.

SSM provides an structured debate about change in practice with emphasis on stakeholders' worldviews and commentators have highlighted as one of its main strengths the way that it handles the intervention process as a learning one although some areas of difficulty in applying the methodology have been indicated (Pala et al., 2003). SSM critics point out difficulty in how to deal with relative views. Some recent publications, e.g. Checkland and Winter (2006) and Rosenhead and Mingers (2001) attempt to resolve this.

OR practitioners and academics understand that antagonizing complex problems may need to involve different stages and acknowledge that different methods may be appropriate at different points in a project when dealing with intricate problem (Mingers et al., 2010). "Researchers have recognised that this development is quite important but theoretically under-researched, and there have been various attempts at providing guidance for combining different methodologies" (Mingers et al., 2010 p. 1152). And although a discrepancy between hard and soft systems has been highlighted (Lane and Oliva, 1998; Pidd, 2007). De Water et al. (2007) argue that the distinction is artificial; pointing out that it may depend on the usage of the method and the level of use in a hard or soft setting. Paucar-Caceres and Rodriguez-Ulloa, (2007) explored using SSM with more formal modelling integrated approach and Kotiadis and Mingers, (2006) explored combination approach, whereas Ormerod, (2006a) claim more pragmatic rational for linking the hard with the soft. Moreover, because of the inherent flexibility of SSM, a SSM-based approach is perhaps the closest a method could come to being SSM (Checkland and Scholes, 1990). Regarding this, Checkland and Scholes (1990) provide five constitutive rules and present these as an epistemology in order to describe SSM sufficiently for its use to be discussed comprehensibly. However, the literature has ignored these clear criteria, which could assist in comparing debates for explanatory precision.

According to Tajino & Smith (2005: 449) SSM is a way in which different ideas from different people can be accommodated through participation and discussion. This method of project management is very flexible and therefore allows managers to deal with different situations that require greater understanding. The design and implementation of this system makes it very dynamic and evolving. SSM places a lot of priority on the process rather than the product. This enables the participants in the project delivery process to develop a mutual understanding of the situation at hand (Tajino & Smith, 2005 p. 450). It is important to note that some of the

problems facing organizations may not be solved through hypothesis testing methods. This is because some of the problems involve complex human relations that require soft systems to help in developing solutions.

## 3. Soft Systems methodology in Project Management

Globalization has increased organization's complexity. In particular the processes have become more intricate. Process improvement and change projects are therefore very critical for the survival of businesses. However, due to the need for stakeholder involvement and technological developments, problem structuring of process improvements and change have become increasingly difficult (Shankar, Acharia & Baveja, 2009 p. 135) contributing to the very survival of organisations.

Operational Research has make contributions towards Project Management not just through multiple models to understand and to represent projects but also by the development of wide variety of methods, techniques, algorithms and programs. Tavares (2002) highlighted that PM concept implies the identification of the system needing change, a description of the current state and the depiction of the desired state.

Using SSM as a research lens, this section is a description of the methodology used in conducting this study. It explains the research design adopted in the study. The link between operational research (OR), project management and SSM highlights the justification for the research methodology employed in this paper. Then the rationale for the selection of qualitative, quantitative or mid research approach discussed. Thirdly, the research design is illustrated and limitations explained.

In establishing a conceptual framework, this paper takes Blackmore et al (1998) notion of "open and closed systems" in which they expressed an open system as an epitomised process of change from continual iteration and learning. Checkland (1999) uses Vickers's concept of an epistemology 'appreciative system' that comprehend the process of humans' deliberation and actions. Checkland went further by developing a dimension of ever changing events. He laments "through its (changing) filters the appreciative system is always open to new inputs from the flux of events and ideas, a characteristic that seems essential if the model is to map our everyday experience of the shifting perceptions, judgements and structures of the world of culture" (Checkland, 1999 pp 52).

Considering organizations as a system continually producing change, a dynamic approach is necessary, as organizations must continuously change in order to survive. According to Bulow (1989), SSM provides this flexibility. Bulow (1989 pp 38) highlights that "SSM aims to bring about improvement in areas of social concern by activating in the people to be involved in the situation, a learning cycle which is ideally never-ending. The learning takes place through the iterative process of using systems concepts to reflect upon and debate perceptions of the real world, taking action in the real world, and again refection and debate is structure by a number of systemic models."
Amongst the various surveys as to how SSM has been used in different areas, a recent paper by Hanafizadeh & Mehrabioun (2017) has analysis around 150 papers that claim to have used SSM over the last decades and found that 8.7% have bene used in project Management. Amongst the application of SSM in project management are in the initiation phase of project management to help estimate the precise costs of projects; also to frame and conceive the whole project conception and project situational analysis. We hope to add to this repository of applications with the use of SSM in an organization, a University located in the north of

England, 'UniNorthEngland' for managing the ever-changing projects whose outcomes seem not to be aligned with their initial objectives.

Mingers et al. (2010 p. 1151) states, "PSMs offer support in such situations through modelling and group facilitation with a view to stimulating dialogue and deliberation about the problem domain, and reaching shared understanding and joint agreements with respect to it." Problem structuring methods (PSM) involves a group of collaborating approaches that assist in problematic situation (Mingers et al., 2010). A PSM situation may consist of multiple actors, multiple perspectives, with conflicting interests and uncertainties (Rosenhead et al, 2004). Usually, the hardest and most challenging part in addressing such situations is the enclosing and definition of the issues creating the problem. Soft Systems Methodology (SSM) is amongst the most used practical systems methodologies (van der Water et al., 2007) and there are now several hundred documented examples within journal articles and books of the successful use of SSM in many different fields including healthcare, the public services, retails and many business applications.

According to Bulow (1989), the aim of SSM is to improve the never-ending learning cycle of social (soft) areas of projects. SSM uses systems concepts to reflect debate and take reiterative actions. The structure of an appreciative system as described by Winter and Checkland (2003), is the theory adopted by the authors as a conceptual framework to frame the application of SSM in PM. The authors use some model-defined questions to help explore key factors of SSM in PM and assist in aligning objective to outcome. These are:

- How is SSM model use in projects?
- How may SSM assist in setting project objectives?
- Through a project life cycle, how can SSM use assist in aligning outcome to objective?
- What are the benefits and concerns of using SSM in projects?

Following the review of five projects (Lea at al., 1998; Gregory and Midgley, 2000; Neves et al., 2004; Ishino and Kijima, 2005; Winter, 2006) applying SSM model to improve their current situation, the author adopts SSM 'four-activity model' used by Ishino and Kijima (2005) and Winter (2006) in response to how is SSM model use in project? Winter (2006) particularly deals with problem situations where objectives are often unclear and where different constituencies have conflicting aims.

In addressing how SSM may assist the setting of project objectives that facilitates outcome alignment, this report first perceive the current problematic situation through using rich picture. Then creates the purposeful activity using the CATWOE and conceptual models using the root definition. Next, the conceptual models are compare to the real life situation for example; the organisational culture and necessary achievable adjustments take place. Finally, actions takes place to improve the problem situation. However, throughout the project life cycle, continuous review occur ensuring objectives are current and achievable. These all feeds into the aim of this research of identifying critical factors leading to deviation in comparison to aim, evaluate the use of SSM analysis in CMPI projects and explore the role of organization politics on CMPI projects using SSM.

## 4. SSM applied to aligning objectives and outcomes in organizational change projects

### 4.1 Background of the Application

The ‘UniNorthEngland’ 2020 vision highlights three main goals i.e. quality research, outstanding learning experience and corporate responsibility. As the University has an outstanding record of providing quality education and research, maintaining and improving on this standards in changing times means it is important to work on the contemporary principles and methods to deliver on the expectations of the stakeholders. To achieve these goals the ‘UniNorthEngland’ has put in place eight enabling strategies. The seventh enabling strategy of the university states “quality processes” through quality culture and continuous improvement (Manchester 2020, 2011). To achieve this strategy, the university has to ensure quality processes that are customer-focused, lean, agile, effective and fit-for-purpose (Manchester 2020, 2011).

This led to the establishment of a Change Management and Process Improvement (CMPI) team in 2012 (The ‘UniNorthEngland’, 2013). The CMPI offers a project management and process improvement services through change projects across the university (The ‘UniNorthEngland’, 2013) and along with other university departments, work toward ensuring the university matches the standards of quality it set itself to achieve.

During the past years the CMPI team have conducted around a hundred change and process improvement projects. Many of these change projects have was successful, while others were less so. However, a common trend in all these projects whether successful or not, is misalignments or deviations in project objective and outcome. Presently, the CMPI receives change project when a departmental unit (client) within the University contact the CMPI seeking consultation on a particular change or improvement project. Even thou the CMPI may then review and analyse practical ways of improving this process in line with best practice, the client would already have an outcome in mind. However, the original objective of the client may be inadequate since the problem may not have been clearly defined and scope.
To understand the role of people involve, its cultural attributes or behaviours and organisational politics at the front end of CMPI projects, the paper is driven by the following research objectives:

a) To identify critical factors leading to deviation in comparison to aim of five projects already completed by the CMPI unit.

b) To evaluate the use of SSM analysis 1 and 2 in CMPI projects.

c) To explore the role of organization politics on projects using SSM in the CMPI unit.

### 4.2 Design of the intervention

The following paragraphs covers the research design, target population, sampling techniques and sample size, data types and source, research instrument, data collection and data analysis. In order to accomplish the different SSM stages, the research adopted a multi-method design (Mingers and Brocklesby, 1997) involving the use of the following methods: observations and semi-structured interviews, review of project documentations and official company reports, official and unofficial documents, archival material, mission statement, personal correspondence and online publication or website.

SSM four activity model has been adopted as SSM is a learning system for taking purposeful action in a problematic or unclear situation, which the aim of improvement (Checkland, 1981). Hence, SSM activity model form the structure of this study:

- First, the “perceived situation” is used to aids insight into the existing unclear or chaotic state.
- Then, the “purposeful activity” facilities the formation of an optimal model.
- This conceptual model is “compared” to the real world with considerations to the organizational culture and politics.
- Finally, the “action to improve” is undertaking using the ‘practical optimal model’ resulting from step three.

However, as experience of using SSM accumulated, Checkland began to find the original seven-stage representation too limiting. And the seven-stage model (logical SSM stream) still seemed to contribute to a systematic (rather than systemic) understanding and that SSM when used use requires constant attention to and reflection on cultural aspects of the situation of concern. This stream contains what Checkland called the ‘three analysis. These essentially consist of:

**Analysis 1** - analysis of the intervention itself, recognises that intervening in a problem situation is itself a problem! It clarifies the roles of *client* (the person who commissioned the study, *problem solver(s),* and *problem owner(s).* Essentially, The client is the person(s) who causes the systems study to take place. The problem solver is the person(s) who wishes to do something about the problem situation. The problem owners are stakeholders with an interest in the problem situation

**Analysis 2** - 'social system' analysis which examines the culture of the situation studied in terms of *roles* (the social position of people in the problem situation), *norms* (their expected behaviours) and *values* (beliefs about the merit of those behaviours of role holders).

*Roles* are social positions, which can be institutionally defined e.g. head of department, shop steward, or behaviourally defined e.g. opinion leader, confidante; *norms* are the expected behaviours which go with a role; *values* are the standards by which performance in a role is judged

**Analysis 3** - 'political system' analysis which examines power and how it is expressed and exercised in the problem situation. In Analysis 3, we are reminded that the ever presence of *politics* of the problem situation and how power is obtained and used. This can be overt or covert and rests upon various ‘commodities’ which bring influence in an organisation; such as command over resources, professional skills, talent and personality.

***Profile of the Study Area***

The company profile on focus in this case study area is the Change Management and Process Improvement unit (CMPI) at the ‘UniNorthEngland’ to identify uncertainties in classifying problem, which then affect the setting of aim and objectives at the front end of projects. The unit analysis in the sampling frame constituted seven projects. These projects team include a Project Managers (PM), Project Sponsors (PS), Project Champion (PC) and participants based at the ‘UniNorthEngland’ as such the studies were conducted at the ‘UniNorthEngland’. The study targeted mostly the Project Managers, Project Sponsors, and Project Champion of each

projects. SSM approach is appropriate and effective in the sense that these projects lack clear objectives.

As earlier stated, the sampling unit comprised mostly of managers. These includes project sponsors (Directors), Heads of Units, and Project Managers in order to form a rich picture. These were from the senior managers (PS), middle level managers (PC), and junior managers (PM). The selection of the set of these employee groups is suitable because the managers' position was more accountable for any issues that faced organizations. This group of employee would adequately provide the required information in the study tool. The expectation of the research was that, these employees had adequate knowledge of the workers as well as well the organizational situation of their respective firms. As such, they would contribute to high degrees as far as organizational change projects were concern.

The centre is currently working on various projects, we believe all of them will be a good material to apply SSM. These are: (1) Destination of Leavers from Higher Education (DLHE) Project; (2) PBS/CAS Process; (3) Research Ethics Review; (4) Estates Process Improvement; and (5) PBS Visa Extension Batch Process. We will concentrate the illustration of SSM using the DLHE Project.

***Case Study: Destination of Leavers from Higher Education (DLHE)***

The demands on this service had grown due to growth over time in the population of students being surveyed and concern that HEFCE might implement a target for responses from international students. The aim of the project, therefore, was to identify ways to increase the capacity of the process to accommodate increases in demands on the service.
The improvement workshop focuses on mapping the current processes, identifying a range of issues with the process and looking for solutions to those issues. The team then planned how it would implement those changes and gather data to verify that improvement had taken place.

Key/potential Benefits includes:

- Potential saving of 72 person days per year due to reduction in the time taken to enter respondent data into system.
- Standardisation of company and institution codes resulting in improved quality of data.
- Improved effective team working both within the team and with other teams.
- Team were empowered to continue identifying issues and finding solutions for these in a more systematic way.
- Staff feel more engaged in the process and feel that they have more ownership of it as well.

***Rich Picture***

Rich picture is a key tool used in the first stages of the SSM intervention, it is a useful devise in change projects in large organizations, Checkland (1981, 1999), Bell & Morse (2013 p. 32), SSM process helps to identify group members who will participate in the change design process. The chosen members can then share the deliberations with other members of the group. An attempt to encapsulate the complex situation surrounded this situation, a rich picture for the DLHE project was developed as shown in Figure 9.2.

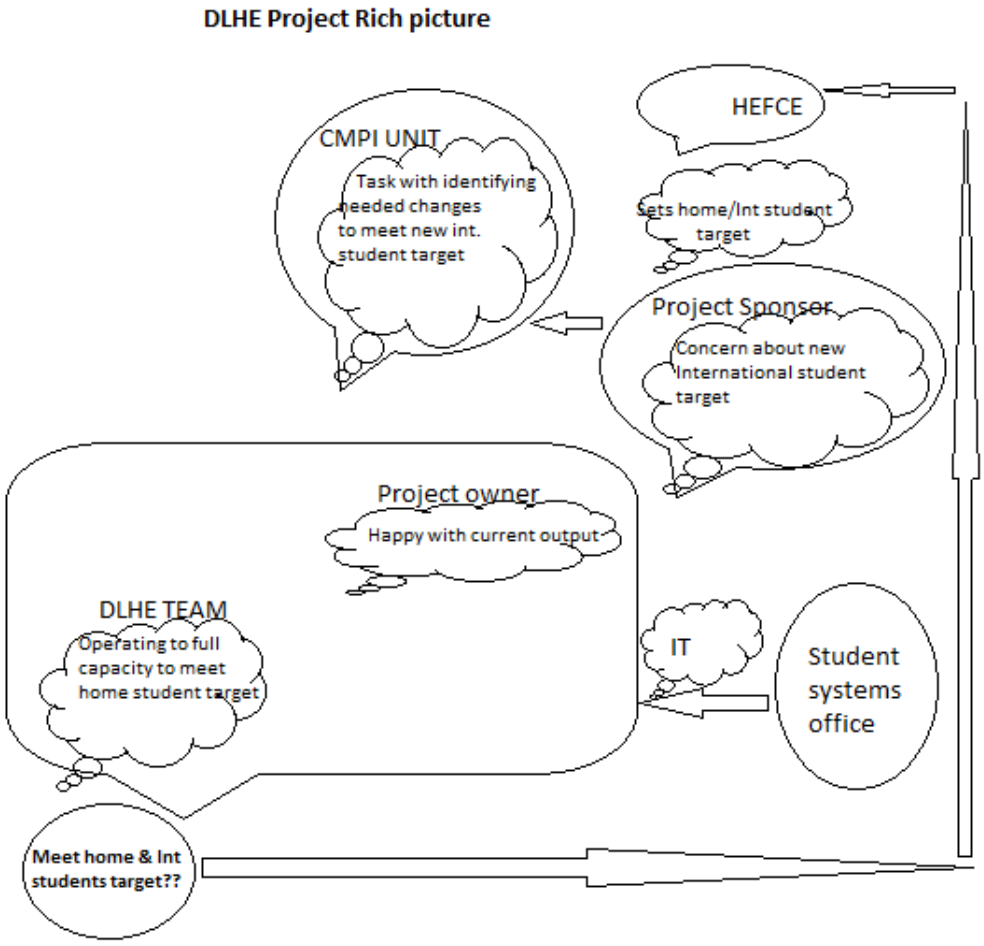



**Figure 9.2: DLHE Project Rich Picture**

As shown above, rich pictures in organization change project help members of the organization to visualize the difficult concepts that are related to and change project (Bell & Morse, 2013 p. 33). Lewis (1994) proposes that rich pictures can incorporate hypertext links to enable a focus on more detailed descriptions of the problem situation and advocate that rich pictures decomposing with lower level diagram showing individual areas in detail. However, as Checkland (1999) says: 'Pictures can be taken in as a whole and help to encourage holistic rather than reductionist thinking about a situation.' A rich picture is not a representation of the organisational processes, but illustrates the problem situation, the relationship between the problems, viewpoints, attitudes, and advantages. Hence, although this approach is potentially useful, it could prevent the user considering the problem situation as a whole. Nevertheless, SSM can provide the holistic picture of the organization with sociological and anthropological views. Rich pictures therefore help in integrating the cultures to the change process.

According to Palmer & Dunford (1996 p. 694), the complex problems and quality improvement processes within the organization can be put figuratively in a metaphorical language using rich pictures. This is because metaphorical language is better in communicating such complex issues because of the manner in which metaphorical language can capture the situations better than literary language. Through the better understanding of the problems, the stakeholders are likely to embrace change and process improvement initiatives. This shows how rich pictures help in management of the process.

**Factors of Deviation**

In reviewing the factors leading to deviation between objectives and outcomes in the projects shown in Table 9.1, a number of themes emerged following one to one interviews of projects stakeholders and/or participants. While most of the themes are similar between all five projects, several are unique to one or two projects.

| Project | Factors of Deviations |
|---|---|
| **Estates Maintenance Service Review** | Low Stakeholder buy-in |
| | Key stakeholders not considered |
| | High risk of conflict |
| | Roles not considered |
| | Culture & politics not considered |
| **DLHE Review** | Roles not considered |
| | Key stakeholders not considered |
| | Low stakeholder buy-in |
| | High risk of conflict |
| | Culture & politics not considered |
| **Points Based System/CAS Process Review** | Key stakeholder not considered |
| | Roles not considered |
| | Low Stakeholder buy-in |
| | Culture & politics not considered |
| **PBS Visa Extension Batch Process Review** | Key stakeholder not considered |
| | Roles not considered |
| | Culture & politics not considered |
| **Research Governance Ethics** | Key stakeholder not considered |
| | Roles not considered |
| | Culture & politics not considered |

**Table 9.1: Factors of Deviation in CMPI Projects**

When asked, was the problem situation defined? One CMPI project manager said during interview:

> *'I don't think we framed in anyway, whether there was a problem or not in the process. I think we had a very clear outcome, that we could service international student if there was a target. I don't think anybody really said there was a problem and don't think we clearly articulated what the problem actually was.'*

Reflecting on whether all key stakeholders were identified, evaluated and engaged; one respond was:

> *'I would say again probably not because across all those stakeholders we probably didn't talk to the team when we were defining the scope of the project. We didn't talk*

*to the student system office when we're defining the scope of this project. So they weren't taken into an account.'*

Speaking about considering stakeholders interest, values and concerns another project manager commented:

*'Did we take into consideration the feelings and view of the staffs? No, definitely not…did we take into consideration the views of the service manager? NO'*

Moreover, it was acknowledged that some stakeholders were:

*'Very defensive about there being a problem with how their work is done or they weren't working in the best way they possibly could.'*

A similar view was shared by a project champion saying:

*'We are working in an environment where people are defensive.'*

When question about the university cultural considerations while undertaking these projects, a project sponsor lamented:

*'I don't think over this project that someone said that this is the university culture and this is how we do things and therefore something are out of scope or something are in scope.'*

These findings show that misalignment between objective and outcome in CMPI projects occur especially in cases where the project manager is unclear or unaware of key stakeholders of the start of the project. A clear and adequate objective is realise only when all key stakeholders are identify and properly evaluated in respect of culture and politics at the front end of the project. Misalignments and misunderstanding of the problem situation occurs when a key stakeholder is not present nor considered from the start meaning deviation between objective and outcome as the absent stakeholder influences later stages and the outcome of the project.

### 4.5 SSM Analysis in CMPI Project

Misalignments occur in many CMPI projects because of failing to account for organisational culture, various perceptions, motivations and stakes within human organisations. SSM may help to make sense of these difficult issues in a CMPI project by following SSM three analysis in Table 9.2.

| | SSM Analysis in CMPI Project |
|---|---|
| **Analysis 1. Finding out about the situation** | **1. Establish the Project Sponsor (Client) who causes the intervention.**<br>**2. Identify the 'would-be problem solvers' (those individuals who conduct the study).**<br>**3. The would-be problem solver then makes up a list of possible problems.**<br>**4. For each of the problems on the list, the would-be problem solver then names one or more 'Problem Owners': identified those people with an interest in the problem situation and those who are likely to be affected by the problem.** |
| **Analysis 2. Roles, norms and values model** | **1. Analyse the role individuals involved in the problem situation play.**<br>**2. Consider the behaviour expected from the individuals involved.**<br>**3. Notes findings.** |
| **Analysis 3. Commodities of power model** | **1. Examine sources of individual power within the unit/department or entire university.**<br>**2. Review symbols of power, for example: knowledge; title or position, or access to specific individuals.**<br>**3. Notes each analyses.**<br>**4. Construct a rich picture.** |

**Table 9.2: SSM Three Analysis in CMPI projects**

Table 9.2: highlights SSM analysis 1, 2 and 3 as well as SSM four basic characteristics. The first characteristic is that there is no system outside the imagination of humans. Most of the systems dealt with in SSM are not technical; rather they are human affair systems. This means that the problems originate from the human desire to think outside the box (Huaxia, 2010 p. 159). The second characteristic is that SSM systems do not have clearly defined objectives. This means that every participant within the system has his or her own set of objectives and can therefore form their problem situations. This means that due to the diversity of thinking, there are multiple problem situations and multiple solutions to the situations (Huaxia, 2010 p. 159). The third characteristic highlights there is no optimal solution for problems that exist in SSM. Each participant in SSM has his own solution to the situation. The best solution is obtain by choosing the solution that is closer to the problem situation. SSM therefore creates a learning cycle from which participants can learn solutions to problems (Huaxia, 2010 p. 159). The fourth

characteristic is that there are two main dimensions of SSM; these are logic-based stream and socio-cultural stream.

SSM rich picture and root definitions can help in eliminating the problems experience during organizational change projects. This is because SSM allows for dialogue among the participants in these processes. Through the dialogue, the ideas of every stakeholder within the organization or process is consider. This will ensure that everybody participates in the process and thereby reduce the chances of sabotage (Ho & Sculli, 1994 p. 49).

As shown above, rich pictures in organization change project help members of the organization to visualize the difficult concepts that are related to and change project (Bell & Morse, 2013 p. 33). Lewis (1994) proposes that rich pictures can incorporate hypertext links to enable a focus on more detailed descriptions of the problem situation and advocate that rich pictures decomposing with lower level diagram showing individual areas in detail. However, as Checkland (1999) says: 'Pictures can be taken in as a whole and help to encourage holistic rather than reductionist thinking about a situation.' A rich picture is not a representation of the organisational processes, but illustrates the problem situation, the relationship between the problems, viewpoints, attitudes, and advantages. Hence, although this approach is potentially useful, it could prevent the user considering the problem situation as a whole. Nevertheless, SSM can provide the holistic picture of the organization with sociological and anthropological views. Rich pictures therefore help in integrating the cultures to the change process.

According to Palmer & Dunford (1996 p. 694), the complex problems and quality improvement processes within the organization can be put figuratively in a metaphorical language using rich pictures. This is because metaphorical language is better in communicating such complex issues because of the manner in which metaphorical language can capture the situations better than literary language. Through the better understanding of the problems, the stakeholders are likely to embrace change and process improvement initiatives. This shows how rich pictures help in management of the process.

### 4.6 Findings and Summary

The primary aim of the research reported in this paper involve the identification of critical factors leading to deviation in comparison to aim in CMPI unit. This occurs especially in cases where the project manager is unclear or unaware of key stakeholders. A clear and adequate objective is realise only when all key stakeholders are identify and properly evaluated. Misalignments and misunderstanding of the problem situation occurs when a key stakeholder is not present meaning deviation between objective and outcome.

This paper also aim to evaluate the use of SSM analysis II (social and cultural features) in CMPI projects. This is done when CMPI project manager notes behaviours and norms in their organisation by observing:

- How personalities at different levels in the organisation hierarchy relate to each other
- How units or departments co-operate
- What roles in the organisation are believed to be the most significant
- What performance is expected from individuals according to their role
- How is performance in role deemed to be good or bad

- Whether any underlying values can be discerned from the above observations

The final aim of this dissertation is to explore the role of organization politics on CMPI projects using SSM. Well, SSM analysis three ensures that organisational politics are consider. The CMPI may note what makes a group or individual powerful in their organisation. Checkland (1998) discusses the factors which bring power as the 'commodities of power'. The CMPI 'commodities of power' involves any ability to have a purposeful effect on a project and must include perceived knowledge or experience; the role or position an individual or group; personal charisma; privileged access to important individuals or information; and command of resources.

"Nevertheless, the fundamental categories of social actors that are correlates of purposes, e.g. participants-designers-users-end users-(ever changing) organizational members, are used sometimes in an unclear intermingled way in the context of loosely structured negotiations. On other occasions the richness and nuances of social-political roles have been overtly recognized but it is this looseness of the structure of practical negotiations through an "open, participative debate" that may be at the heart of the SSM-problems" (Ivanov 1991, p. 43).
Furthermore, the process of thinking, negotiating, arguing and testing a model involving stakeholders with many differ views and interests is dependent on the willingness of participants to enter into such an open discussion. If participants withdraw or fail to provide full information during these sessions, the result may be inadequate. On the other hand, if participant engage fully, there is a chance of confrontation.

### 4.7 Limitations

The following are limitation to the research reported in this paper:
- Due to time constraints, this research relies on literature review of SSM and SSM application to case study projects are in retrospect.
- Research interviewees are with project participants and/or stakeholders with little or no knowledge of SSM.
- The enquiries and analysis are solely on the author's interpretation of the literature review and interviews conducted.

## Discussion

This section brings together results from section 4 and discusses the impact and effects of roles including but not limited to change of personal, the social and political system and cultural problems in applying SSM.

### 5.1 Impact and Effects of Roles

Soft systems methodology has many impacts and effects of roles on the organizational change projects. The approach is use widely and may prove to be useful and fruitful in CMPI projects especially in cases where the project manager is unclear or unaware of key stakeholders. A clear and adequate objective is realise only when all key stakeholders are identify and properly evaluated. Misalignments and misunderstanding of the problem situation occurs when a key stakeholder is not present meaning deviation between objective and outcome.

The approach has been widely used in system thinking and mainly in addressing any problematic situation that may be affecting an organization. The approach is useful in helping a project manager clearly understand the nature and magnitude of the problem both during the

early and developmental stages. Fertile knowledge and understanding of a problem situation both in the initial and subsequent stages helps the project manager in drawing up conclusions based on the available information. It also helps in determining any future clarifications.

It will also provide a platform for the articulation of multifaceted social processes in a precise manner. The approach is use by many organizations in developing appropriate and suitable frameworks that seek to address complex social networks. Soft System Methodology is widely used as a project management tool in order to ensure that the process achieves an organized action. It encourages critical thinking as well as system thinking and makes use of system language in order to come up with appropriate models for use in PM. It implies that the approach has impacts on the way that a certain organization as well as any projects underway is manage in order to achieve a successful outcome. The model is continually useful in drawing up a link between system thinking and real world situations and is very useful in managing the thinking process.

### 5.2 Social and Political System Analysis

The social system analysis seeks to assess three interrelated aspects that include; values, norms and roles. This assessment goes further into looking at the Soft System Methodology process and recognizes the importance of redefining all the aforementioned aspects. It is also of importance to consider the social system analysis as being incomplete. The interactive process of spending schemes and looks into reflecting on the debate that looks into the perception. The Soft System Methodology has been consistent with the cultural concept and has been very crucial in enabling people to enable and sense making. According to the model, the approach tries to make different human activities more meaningful. Social System Methodology is vital in ensuring that values are uphold and respected when choosing a model to use in bringing about changes in organizational projects.

Thanks to soft system methodology, system thinking has widely been used in developing system models of human activities. This is an analysis grounded on logic-based stream, and this seeks to build suitable and appropriate models of human activity systems. This is fulfil by a cultural stream system that is, and that gives room for investigation of both political and social factors (Vidgen, Wood-Harper & Wood 1993, p. 103).

The system has been very effective in ensuring that there are well-established power structures in the organization. System thinking has been widely used in ensuring that the laws and legislation that touches on the project changes in an organization are well thought and developed. It gives room for critical thinking and brainstorming in ensuring that any adopted policy in any organizational project changes.

Soft system methodology gives a room for more consensual action. Both socially and politically, soft system methodology may play crucial roles in the sense that it helps in better understanding of any changing perceptions. First, system thinking helps in process thinking whereby anyone engaged in the organizational change project will be involved in the process thinking. It implies that everyone engaged in the process of critical thinking in order to ensure that every stakeholder has the chance to brainstorm based on the situation on the ground. Secondly, the system gives room for negotiation among all the individual parties who are engaged in the organizational changes projects. After the initial stage of the thinking process, SSM allows the parties to engage into a concession by tabling down their different reasoning in order to come to a central position by mutual concession. Nevertheless, the approach may

involve aspects of arguments before a final agreement. Although SSM tries to look at the broader picture, it allows for different views and opinions from different individuals.

Different people will come up with different approaches for any given project and then table their views for discussion and deliberations. Based on the different views and opinions, then arguments are likely to arise as those different parties look forward towards arriving at a common ground. Finally, the system puts the projected model into testing. It implies that prior to fully implementing any model, system thinking gives room for analysis in order to ensure that any adopted model, whether political or social, comes out successfully (Yeo 1993, p. 115). From the discussion, it clear that SSM has much impact on both the social and political systems of any given country.

### 5.3 Cultural problems in applying SSM

There are some cultural challenges that are associated with the application of soft system methodology. As earlier defined and as from the above discussion, SSM is an approach that employs critical thinking, and that incorporates the views of different stakeholders with the main view of solving a problem. Culture is a system of beliefs, values, and norms. In other words, it refers to the governing principles of a particular group and helps in harmonizing the community concerned. However, these do not only apply to a community but also in cases of organizations whereby organizational culture is the use of certain exchange mechanisms that are inherent in any organization and that help in the governing all the stakeholders towards the achievement of set goals and objectives (Ashkanasy, Wilderom & Peterson 2011, p. 13).

It is inarguably true that the people who run the organization come from different cultural backgrounds implying that they have different sets of beliefs. Sometimes it becomes problematic as leadership may try to change organizational culture. In spite of the fact that the system calls for open dialogue and deliberations, this may interfere with the existing culture and core values set within an organization. For instance in the case of authoritative system of leadership, the leader has the final say. However, when employing SSM, then open debate is allow and in such a situation, the leadership may feel undermined. This may clash with the organizational culture or values. At times, the leadership may even object to having open debates and discussions (Moores 2006, p. 4).

Culture plays a very vital and cognitive role in determining how effective an adopted style or method can be. However, based on the cultural backgrounds, people will have different views about any issue under consideration. Despite being a system that allows open-mind discussion, the stakeholders may limit their deliberations based on what is believe to be ethical or unethical in their cultures. This implies that the results arising from the open discussion will be lacking, and this may affect the model adopted, the stakeholders concerned, and the general outcome of the set goals and objectives (Wilson 1990, p. 103).

The mode of solving a problem within any organization may interfere with the general organizational culture. It is not obvious that the deliberations and recommendations proposed by the stakeholders will be implemented but implies that those seen as having much influence may be considered, and this may bring about biases and aspects of ‘status quo’ thereby affecting the cultures of the organization (Feather & Sturges 2003, p. 584).

### Conclusions and recommendations

We present the key findings in relation to the research objective of factor causing deviation, SSM analysis in CMPI project and the effects of politics. Also offered in this section are the limitations of this research as well as opportunity for future research. Finally, the author reflects on the challenges and rewards of undertaking this dissertation.

CMPI change projects may find the SSM approach as a very useful tool in the sense that it helps in constraining the thinking of different individuals thereby expanding their thinking. When people are subject to expansive thinking, and when their thinking expands, then they will be able to brainstorm and will be able to use their reasoning in drawing up concrete decisions. Broadened thinking will help CMPI change project stakeholders in coming up with well thought and clear objectives. Just like any other systems, the system takes into account the comparison between the real world situation and any other existing model of the world as it may be. The approach uses several stages that are very useful in the formulation of clear objectives. In stage one and stage two there is drawing up of a clear picture of the nature of the problem situation in question. Where the problem situation analysis may come up with a range of hopeful and meaningful choices this platform. The third stage involves the root definition. The fourth stage will incorporate aspects of conceptual models that seek to develop human system activities. It is this stage that a pace is set on how to achieve any change defined under the root definition. Stage 5 incorporates aspects of stage two and stages four in order to have a clear definition of the broader picture. Stage 6 will involve the listing and classical analysis of the feasible culturally and systematically accepted transformation derived in stage five. The final stage implies the adoption of the best model and its implementation into the real world. By undertaking the above-mentioned stages, the stakeholders can reach suitable set objectives by ensuring that the change is culturally feasible and systematically desirable.

Finally, the CMPI unite may need to identify the characteristics of the environment in which SSM is use to implement change or process improvements. From the above discussion, an SSM approach is appropriate for environments that do not have a clearly defined problem situation thereby lacking clear objectives. This will allow the participants in the system to state their objectives and bring in their ideas on how to achieve this. In the change and process improvement, the consideration of ideas from different participants will help the participants feel value and own the process. This will reduce the chances of employees wanting to sabotage the change process. However, a project manager may carefully ensure that the consultation with the participants does not lead to waste of time for the organization. This may occur when stakeholders' different worldviews lead to conflict. A project manager using the SSM approach may need to know when to pursue a discussion and when to adjourn it. Moreover, implementation of change by the CMPI unit can start from any SSM stage hence, is it is not necessary that the stages be in a systematic manner.

**We list here some recommendations**

- SSM analysis 1 highlights the importance of roles within a project. It is vital to identify all key stakeholders in order to determine objective. Hence, adopt a well-structure evaluation of keys stakeholders in a project. Evaluate each stakeholders to identify their interest, concerns, power and opinion of the problem situation before setting objective. This may diminish misalignment between objectives and outcomes in CMPI project.

- The author desire to come up with an optimal conceptual model of SSM suitable for use within the CMPI unit. However, the uniqueness of each projects the CMPI unit undertakes

means that no optimal conceptual model can applied to all its change projects. Nevertheless, SSM four stages analysis may be useful amongst other tools to analyse future situations.

- The complexity of problem situations means that unidentified issues will continuously arise and SSM may be insufficient in some circumstances. Still, the flexible characteristics of SSM enables it to combine with multi-criteria methods such as lean-six sigma. SSM model is a learning cycle, so its framework and applications with other multi-criteria methods can be continuously develop by learning through experience. Each methods could complement each other and eliminate drawbacks.

- SSM language may be a major barrier for CMPI facilitators and project participants. To increase the perceived relevance of the process and make participants familiar with SSM, the terminology barrier can be addressed by re-wording and re-phrasing to everyday language.

### 6.3 Future Research Opportunities

Soft Systems Methodology use in Project Management is a relatively new area for research. This dissertation retrospective approach provides a 'drop in the ocean' to this evolving disciple. Hence, SSM application in current change projects needs more empirical research, especially at the front-end of projects as well as the differ stages of a project life cycle.

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